

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Please cancel claims 1-15 without prejudice.

1-15. Canceled

16. (Previously presented) A voltage regulator for use with switching power converters comprising

a non-linear detection circuit having a reference voltage connected to a first input, and a signal representative of an output voltage connected to a second input, and outputting a first logic signal if the first input is greater than the second input, and a second logic signal if the second input is greater than the first input,

a charge pump responsive to the output of the detection circuit,

a filter connected to an output of the charge pump for linearizing the non-linear response of the detection circuit, and adapted to provide an output signal to a controller comprising at least one of a PWM or a PFM controller to cause the voltage applied to a load to be substantially constant, and

wherein the first input to the detection circuit is adapted to be connected to the load through only an impedance.

17. (Currently amended) A voltage regulator for use with switching power converters comprising

a comparator having a reference voltage connected to a first input, and a signal representative of an output voltage connected to a second input, and outputting a first logic signal if the first input is greater than the second input, and a second logic signal if the second input is greater than the first input, and

a filter continuously having an input responsive to an output of the ~~conversion circuit~~ comparator for preventing oscillation and smoothing the signal received at the input to the filter, the output of the filter adapted to be connected to a controller circuit, wherein the controller is at least one of a group comprising a PFM controller and and a PWM controller.

18. (Previously presented) A voltage regulator for use with switching power converters comprising

a non-linear detection circuit comprising a voltage comparator having a reference voltage connected to a first input, and a signal representative of an output voltage connected to a second input, and outputting a first logic signal if the first input is greater than the second input, and a second logic signal if the second input is greater than the first input,

a conversion circuit comprising a charge pump for continuously converting the output of the detection circuit to charge, and

a filter connected to an output of the conversion circuit for linearizing an output of the conversion circuit and adapted to provide a smoothed signal to a driver circuit.

19. (Previously presented) The voltage regulator of claim 16 wherein the voltage applied to a load is less than the reference voltage.

20. (Previously presented) The voltage regulator of claim 17 wherein the voltage applied to a load is less than the reference voltage.

21. (Previously presented) The voltage regulator of claim 18 wherein the voltage applied to a load is greater than a supply voltage.

22. (Previously presented) The voltage regulator of claim 16 wherein the detection circuit, charge pump and filter cooperate to reduce output ripple.

23. (Previously presented) A method for reducing ripple in a DC-to-DC conversion circuit comprising the steps of

outputting as an output signal a first logic signal if a reference signal is greater than an output voltage,

outputting as an output signal a second signal if the reference signal is less than the output voltage,

continuously converting the output signal to charge as a charge output,

filtering the charge output to linearize the output signal to cause the output voltage applied to a load to be substantially constant, and

providing the linearized output to a controller and drivers for application to the load.